# INDUSTRIAL-GEOGRAPHICAL DEVELOPMENT PROBLEMS IN THE NORTHERN GROUP OF EUROPEAN SOCIALIST COUNTRIES

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Among the European socialist countries the German Democratic Republic, Czechoslovakia and Poland are the most important, industrially most developed countries, which have the longest historical past. These countries have priorities to the first three places in the line of the socialist countries, by reason of the industry's share within the structure of employment and of the outstanding part they play in the production of national income.

After the Second World War, in the developing period following reconstruction, these countries, according to the favourable starting level, showed a slower development, than that of the southern countries.

In spite of this, because of the changes in the structure of economy and industry (which is characteristic generally for the socialist countries), they preserved their position with the further strenghtening of their economic potentialities and industrial development. In the first five-year plan several difficulties came to the surface in the different countries. For example in the German Democratic Republic the lack of metallurgy urged the changes in the industrial structure. There was a need for a higher speed of development in Poland, because of the greater war losses, and the less favourable starting level.

Today all the three countries are medium-developed, industry-type ones. Their economic stage of development (on the basis of per capita national income) is followed by their industrial development, too (German Democratic Republic, Czechoslovakia, Poland). Heavy industry stands high above within industry, in proportion to development in these countries.

The table very well demonstrates the pushing forward of heavy industry in Poland, though its rising in the GDR is the most conspicuous. The growing of heavy industry's percentage in Poland is taking place mainly at the expense of light industry, and at that of the light and food industry in Czechoslovakia, more or less in the same proportion. From the decrease of the difference between the highest and lowest values in the examined period the conclusion can be drawn that the industrial structure of these

*1. table*

**The formation of industrial structure**
(according to the employees in industry)

| Branches | Year | GDR | Czechoslovakia | Poland | The difference between the highest and lowest values |
|---|---|---|---|---|---|
| heavy industry | 1960 | 69.1 | 61.6 | 57.4 | 11.7 |
| | 1974 | 69.7 | 63.1 | 60.7 | 9.0 |
| light industry | 1960 | 23.6 | 29.7 | 30.7 | 7.1 |
| | 1974 | 23.1 | 29.0 | 28.1 | 5.9 |
| food industry | 1960 | 7.3 | 8.7 | 11.9 | 4.6 |
| | 1974 | 7.2 | 7.9 | 11.2 | 4.0 |

three countries draw closer to each other and it manifests itself mainly in the closing up of Polish heavy industry. The weight of food industry in the GDR and Czechoslovakia and that of the light industry in Czechoslovakia and Poland is about of the same value.

There are great *territorial differences* in all countries that appear in the *industrial development of certain regions*. The historic characteristics, the divergent features of industrialization and the dissimilarity of the mineral resources and other physical conditions lead to the formation of special, territorial divergencies in each of the countries. In Poland and in the GDR the southern territories are more developed and in the north only the two capitals rise out as islands from their outskirts. In the GDR Rostock could less develop before the Second World War, in the shade of Hamburg. Rostock's background is less developed, even today than the voivodship around the Polish seaport, Gdansk. In Czechoslovakia the western part of the country and within the Czech and Moravian countries the northern part are more developed. We used the complex index* suggested by the Yugoslavian geographer S. Zuljic, for the measurement of industrial development. This index makes possible the geographic approximation of regional development by the comparing of industrial values to territory and population (1. figure). The industrially developed belts extending from W to E and SW to NE string the connected territories of the neighbouring countries.

$$* f = \frac{a+b}{c+d}, \text{ where}$$

$a$ = is the share of the region from the employees in industry (%)
$b$ = is the share of the region from the industry's production values (%)
$c$ = is the share of the region from the country's area (%)
$d$ = is the share of the region from the country's population (%)
$f$ = industrial development level

If $f$ is larger than 1, the region's industry is more developed than the country's average. Otherwise it is less developed than the average. We have placed the regions of the three countries into five groups of development, according to the values of $f$.

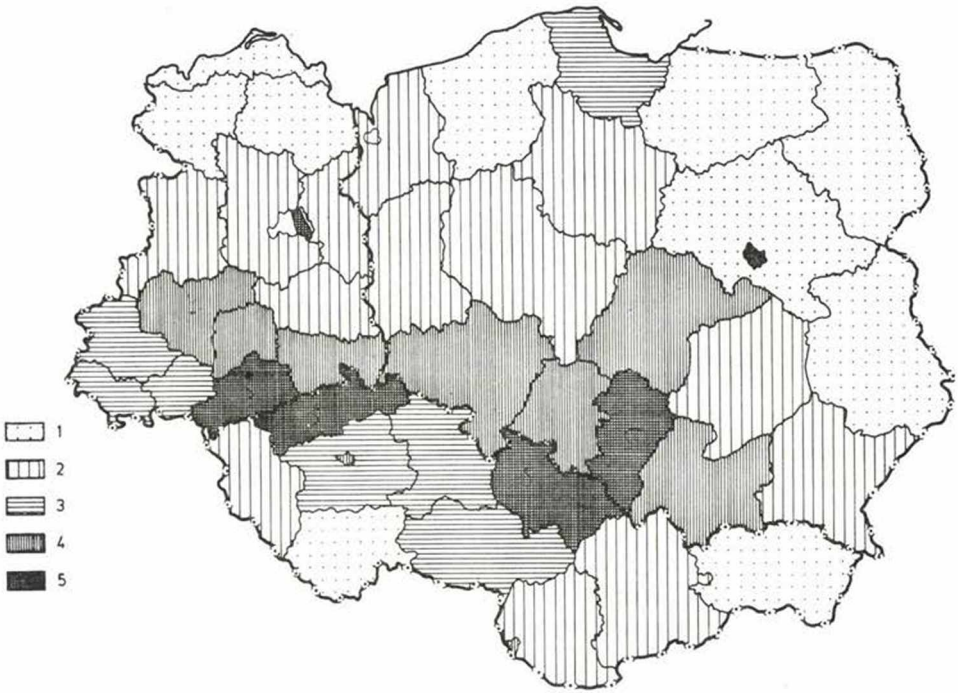


*Figure 1.* Industrial development level

1 = 0.6 underdeveloped, 2 = 0.6–0.9 less developed, 3 = 0.9–1.2 medium developed, 4 = 1.2–1.5 developed, 5 = 1.5 outstandingly developed

The population density and the settlement pattern of these countries are more or less the same in structure.

The north-south differences of *population density* in the GDR derive from the formerly heavily different economic characteristics of certain parts of the country.

The population density in the north – in the realm of the former large estates – does not reach even the 100 persons per km², while in the southern regions it surpasses this value many times, because of the early industrialization of this territory.

After the Liberation agricultural character shrunk to merely three regions in the northern territories, due to the industrialization. In the middle of the country the mixed agricultural-industrial character is dominant. Passing from the south to the north the belt of industrial-type regions widens. More and more regions become industrial-agricultural or industry-type ones, by their development. These changes of type more or less reduce the territorial differences of population density.

The Czechoslovakian west-east and the Czech north-south differences similarly decrease although they are well perceptible even today. Poland's heavy industry region in the south, being of great importance in Europe, is still highly conspicuous.

The degree of urbanization is more outstanding in the industrially developed regions in all the three countries, although there are some special characteristics (special differences) in the *urban network*. These are the smaller type urban settlements in overweigh in the GDR and in Czechoslovakia. The small number of cities ( in GDR 13, in Czechoslovakia 6) over a hundred thousand population are concentrated in the south of the GDR, while in Czechoslovakia they are more evenly scattered. This latter situation can be explained not only by the more moderate concentration of the Czechoslovakian industry, but by the country's former division (Czech, Moravian countries, Slovakia) and its present federal republican structure, too. The more increased development of Slovakia after the Liberation makes its effect undoubtedly.

The big settlements are characteristic for the urban pattern of Poland and most of them are located in the south, in Upper-Silesia. From among the European socialist countries the agglomeration process is the most advanced in Upper-Silesia. For example the industry belt of the Katowice agglomeration represents only 2 percent of Poland's area, while it gives 10 percent of the country's population, 1/5 of the industrial employees and value of production, and 1/4 of the fixed capital investments.

*Territorial concentration*

Regional differences of industry are summarized in the territorial-concentrational indexes.* These indexes can be successfully applied in case of countries similar to each other from the point of view of territorial and industrial development. They can be used for the analysis of regional industrial inequalities, for the explanation of similarities and differences among the countries.

The dynamics of territorial concentration can be shown in the following table by the help of comparing the distribution of population and industrial employees.

*2. table*

**The territorial differences of industrialization**

| | 1960 | 1970 | 1975 |
|---|---|---|---|
| Poland ..... | 24.7 | 19.0 | 15.1 |
| GDR ..... | 14.3 | 12.8 | 11.1 |
| Czechoslovakia ..... | 13.7 | 9.6 | 8.2 |

* For the calculation of concentration index P. S. Florence's method was used in all cases:

$$K = \sum_{i=1}^{n} |A_i - B_i|, \text{ where}$$

$K$ = is the measure of concentration

$A_i$ and $B_i$ = are the percentage share of the regions, counted from the national total of the two compared quantities

$n$ = number of regions

*3. table*

**The territorial concentration of the industry (1972)**

| | GDR | Poland | Czechoslovakia* |
|---|---|---|---|
| total industry | 33 | 30 | 27 |
| heavy industry | 33 | 37 | 35 |
| enegetics | 54 | 57 | 53 |
| metallurgy | 48 | 67 | 61 |
| chemical ind. | 45 | 31 | 31 |
| engineering | 30 | 31 | 26 |
| light industry | 49 | 35 | 25 |
| textile | 68 | 46 | 40 |
| glass and ceramics | 37** | 29 | 52 |
| leather, shoes | | 30 | 46 |
| food industry | 21 | 22 | 27 |

* data valid for the 1960s
** light industry without the textile industry

The gradual decreasing of territorial differences inside the country is characteristic for all the three countries. The differences among the countries with the approaching of concentration indexes to each other are also decreasing.

Further on we will examine the concentration of industry, of certain industry groups and of some stressed branches, by comparing the distribution of industrial production and the area among the regions.

The concentration indexes, up to now, well reflect the lower level concentration of Czechoslovakian industry. This can be explained partly by the lack of such an outstanding industry-complexum like the Polish Upper-Silesia and partly by the relatively minor lag of some Czechoslovakian industrially under-developed territories. The smaller territorial concentration of Czechoslovakian industry is in connection with the more scattered territorial settling of raw materials and sources of energy. Although the Ostrava–Karvina-basin dominates the Czechoslovakian coal mining, beside it there are some smaller occurences, too. In Poland the Upper-Silesian basin is leading not only with its coal-mining, but with the production of manufacturing industry sectors, too, placed on top of them (with electric energy, metallurgy, heavy engineering, chemical industry). The GDR's two lignite basins have a greater importance in the country's lignite mining and in the related electric power generation and chemical industry, than that of the Most and Sokolov basins in Czechoslovakia. We have to remark that in spite of this situation, the formerly

mentioned branches based on raw-materials and sources of energy (like fuel industry, metallurgy) are the most concentrated branches of the Czechoslovakian industry.

*Heavy industry*'s territorial concentration in the highest in Poland, due to the concentration of *fuel industry* and *metallurgy*. The territorial concentration of Czechoslovakian fuel industry and metallurgy – in spite of the more moderate resources of hard coal – does not fall far behind from Poland's appropriate values. The reason for it is the existing considerable amount of lignite resources and the operation of the complete vertical metallurgical manufacturing plants, based on hard coal. Heavy industry's territorial concentration is the lowest in the GDR, perhaps because of metallurgy's more scattered location, compared to the other two countries. The GDR is poor in the metallurgical-technological raw materials, consequently its manufacturing capacity for producing pig iron is very narrow. So mainly the half-vertical steel plants are in majority in the country, partly because of their orientation on imported pig iron, and on the consumer's market (engineering) that guarantees the raw material (scrap-metal), too. As there are no sensible differences of concentration of fuel industry, the concentration of heavy industry can be increased only by other heavy industry branches. Although the territorial concentration of *chemical industry* – also based on fuel – is the highest in the GDR, from among the three countries, it does not reach, in spite of this, the extent of the Czechoslovakian and Polish metallurgical concentration.

*Engineering* is the most uniformly distributed branch of heavy industry. The concentrational values of German and Polish engineering, compared to the area, are almost equal. Only the Czechoslovakian one seems to be less concentrated. But Czechoslovakia, as regards the concentration indexes gained from the comparing of population to the engineering production, precede the GDR and Poland. (Czechoslovakia 21.2; Poland 18.4; GDR 10.5). The reason for this is that the main producing regions of Czechoslovakian engineering (Prague, Plzen, Brno and their surroundings) are not the country's most populated regions. But the centres of engineering in the GDR and Poland are located in the southern regions, possessing the maximal population density.

The territorial concentration of *light industry* is the highest in the GDR, from among the three countries (49) with the textile industry being there the most concentrated branch of the industry (68). Similarly, the Polish textile industry is the most concentrated branch of that country's light industry. The textile manufacturing regions of these two countries are outstanding even on European level (Karl-Marx-Stadt, Lódz). In Czechoslovakia the glass and ceramics industry is the most concentrated branch, adapting itself to the fuel, raw material supply's location (Sudetes, Erzgebirge). In Poland and to some extent also in the GDR, the glass and ceramics industry are oriented to the consumer's market, and they appear in almost all the bigger towns or in their outskirts. The leather and shoes industry in Czechoslovakia also stand out from the values of the adequate industry branches of the examined countries (Gottwaldov and Partizáns-

ke – Bata Works) with their concentration values surpassing even that of the textile industry.

*Food industry* is the only one that is spread most evenly among the regions in all countries. The territorial concentration of food processing is the highest in Czechoslovakia from among the three countries. Its value is equivalent to the average figure characteristic for the whole Czechoslovakian industry. This greater concentration is the result of the effects of the country's three agricultural regions on the location of food processing industry.

*Territorial equalization process*

On the basis of the industry-developing policies of the past years great efforts have been made for the changing of the industry's historically ill-proportioned territorial structure. This can be solved only by the more increased developing of industrially underdeveloped regions. The territorial pattern of investments and the *regional differences of industrial development process* (2. figure) reflect a territorial equalization process that is due to the increased eastern orientation of foreign trade, too. The latter involves industrialization at the eastern border of the countries for the reception of the heavy-industrial raw materials from the Soviet Union. This process can be noticed not only in Poland and Czechoslovakia, but in the case of the Frankfurt region (Schwedt), of the Warsawian voivodship (Plock) and of West-Slovakia (Bratislava), developing on imported petroleum; by the metallurgy in the GDR (Eisenhüttenstadt in the Frankfurt region) and in Eastern-Slovakia (Kosice), which all utilize metallurgical raw materials arriving from the Soviet Union. But in the south-eastern part of Poland the newly explored local natural resources (like natural gas, sulphur) gave also an impulse to the development of industry. The underdeveloped northern and eastern regions of the GDR and Czechoslovakia, struggling with labour-shortage, can benefit from the local manpower released of the agriculture as a location factor. For the industrialization of the eastern part in the GDR the daily small-distance migration of the Polish "guest-workers" can be favourable.

*An outstandingly high industrial development rate* is valid only for about the half of the regions. Poland's northern and western-middle part keeps its recent relative level of development as a great contiguous block, beside a very moderate development rate. Here the less developed industrial regions (of course relatively more developed than their environments) are in predominance. The highest developing rate can be observed along the border of the less developed and underdeveloped regions (in the Neubrandenburg and Frankfurt regions, in the Rzeszów voivodship and in Eastern-Slovakia), as well as on the eastern underdeveloped peripheral territories of Poland. Thus the less developed territories can fall in behind the line of the medium-developed regions, together with the underdeveloped ones, almost at the same time. So the different developing scale of the under- and less-developed parts of the backward territories will not increase presumably the inner territorial differences in the future. Contrarily, beside

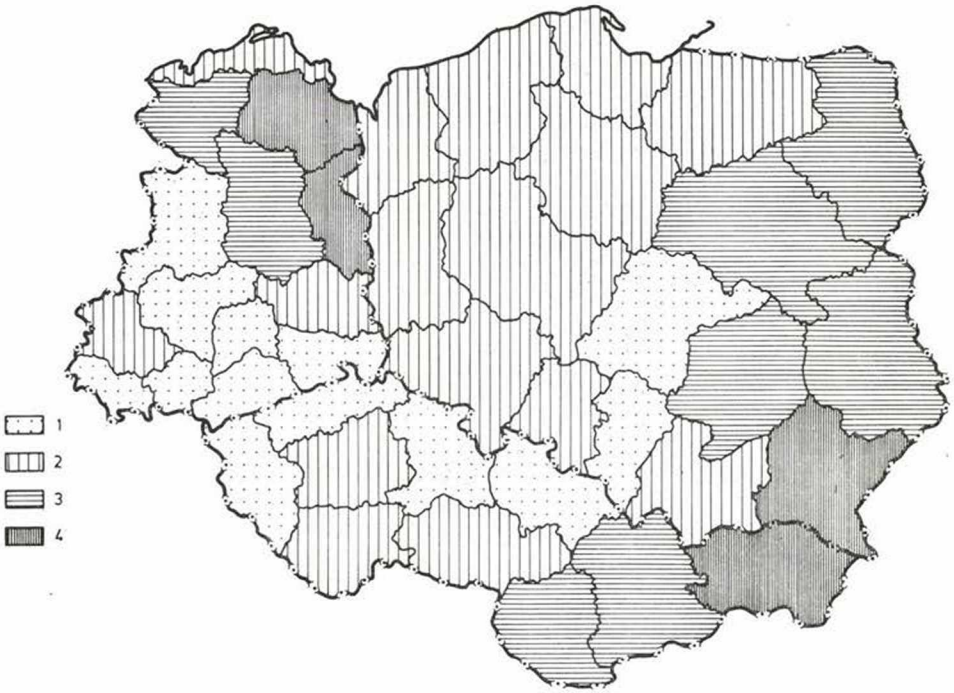


*Figure 2.* The rate of increase of industrial production
1 = 150–210 low, 2 = 210–260 medium, 3 = 260–310 high, 4 = 310 outstandingly high

the general closing up of the undeveloped territories it will lead to certain equalization of inner stage of development, too.

In the GDR's northeastern, Poland's northeastern and southeastern and Slovakia's eastern, industrially underdeveloped or less developed regions the prominent developing rate will undoubtedly have an effect on the forming of industrial stucture. The heavy industry, being in process, will give the basis for the development of manufacturing industry and other branches of economy in these underdeveloped territories.

It is of no minor importance to draw a comparison between the development level and development rate of the three capital's surroundings. Because of the effects of different heavy-industrial location factors (in the case of capitals that of the consumer's markets, in Middle Czechoslovakia the local and imported raw materials) the differences between the development of the capitals and their outskirts are important. Berlin and Warsaw are more developed than Prague, but the belts around Berlin and Warsaw are less developed than the Middle-Czech country (1. figure). Thus the development levels of the capitals and their outskirts, measured together, show almost no difference. The quick *industrial development* of the territories surrounding Warsaw and Berlin is definitely superior to that of the

Middle-Czech country where Prague itself is situated. This cannot be explained nowadays only by the great war losses of Warsaw and Berlin, and the present higher development level of the Middle-Czech country. It is rather due to the Middle-Czech country's geographic position inside the country, to the longer west to east extension of the country, as well as to the significant west-east differences of the development level of industry with in the country.

The underdeveloped and less developed Slovakian regions, being far from the Middle-Czech country, near the Soviet border, are more suitable for the direct utilization of imported raw materials at the smallest transportation distances. Slovakia has also a luckier manpower balance than the western part of the country, which is favourable to the increased industrialization of the east. The means of production, necessary for industrialization and the technical management can be provided by the industrially also developed Moravian regions, lying eastward of the Middle-Czech country and bordering on Slovakia. But the areas surrounding the northern capitals (Warsaw, Berlin) attracting industries by reason of advantages springing from their situation near the eastern borders can serve as an important basis for the economic progress of the industrially underdeveloped or less developed territories bordering them.

*The industrially developed regions* generally exhibit the slowest rate of developing. This remark is valid first of all for the old industrial regions of the GDR and Czechoslovakia and to a less extent to Poland, too. Poland's industrially developed regions (like Wroclaw, Opole and Cracow voivodships) bordering on the GDR and Czechoslovakia are developing rather at a more rapid pace under the influence of greater raw metarial richess and by the growing COMECON cooperation (Polish – German lignite and labour-force cooperation, Soviet transportation of iron ore for the Nowa Huta Metallurgical Works). By means of this, inside the developed industry-belt running from west to east, on the borderlands of the given countries an outstandingly developed continuous belt is being formed also from the west to east. Thus within the industrially developed regions, in spite of the less differentiated pace of development, we can witness an internal equalization process and the growing number of the outstandingly developed regions.

*The relation between the state of development and specialization*

Most of the industrially underdeveloped regions excel with their specialization in food processing (3. figure) or in light industry (4. figure). The degree of specialization of these industrial branches are different in the countries. While the specialization of food industry in the GDR is more expressed, the light and food industry in Poland and in Czechoslovakia show almost the same level of specialization. The outstandingly high levels of specialization in the industrially developed regions, refer to the one-sided industrial structure of these territories (figure 1., 3., 4.,) rather than to the advanced state of the given branches, surpassing the national average.

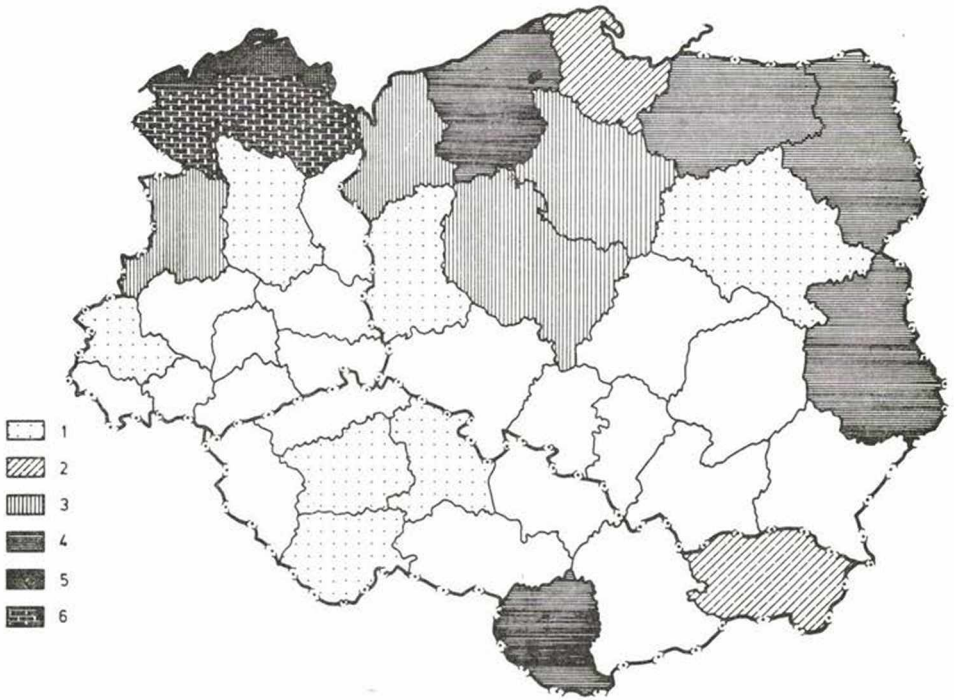


*Figure 3.* Specialization in food industry
1 = 1.0–1.3, 2 = 1.3–1.6, 3 = 1.6–1.9, 4 = 1,9–2.2, 5 =2.2–2.5, 6 = over 2.5

From among the region-types modelled on the basis of sectoral specialization* (5. figure) the so called mixed types are dominating in these territories. About 2/3 of the regions have become specialized in more than one branches of industry. Because of the emerging specialization of light and food industry most of the mixed-type regions exhibit a specialization in light and food, or food and light industry. This latter is characteristic mainly to Poland, where only 1/4 of the mixed-type regions (the heavy and food industry being combined in Rzeszów, Warsaw and Szczecin) diverges from the earlier mentioned specializational lines, while in the GDR it emerges a different combination, applied to 1/3 (heavy and food industry of Potsdam, heavy and light industry of Cottbus) and in Czechoslovakia to 2/3 (the light and heavy industry of Western-Czech-country and Middle-Slovakia, the heavy, food and light industry of Eastern Slovakia) of mixed-type regions. The presence of specialization in heavy industry in the

* The calculation of industrial-regional specialization, according to the localizational sectoral index: the quotient of the share from the national output of some industry of a concrete region and the share of a given region from the country's total industrial production. A concrete region can be regarded specialized in some industry on the basis of received index values, exceeding number 1.

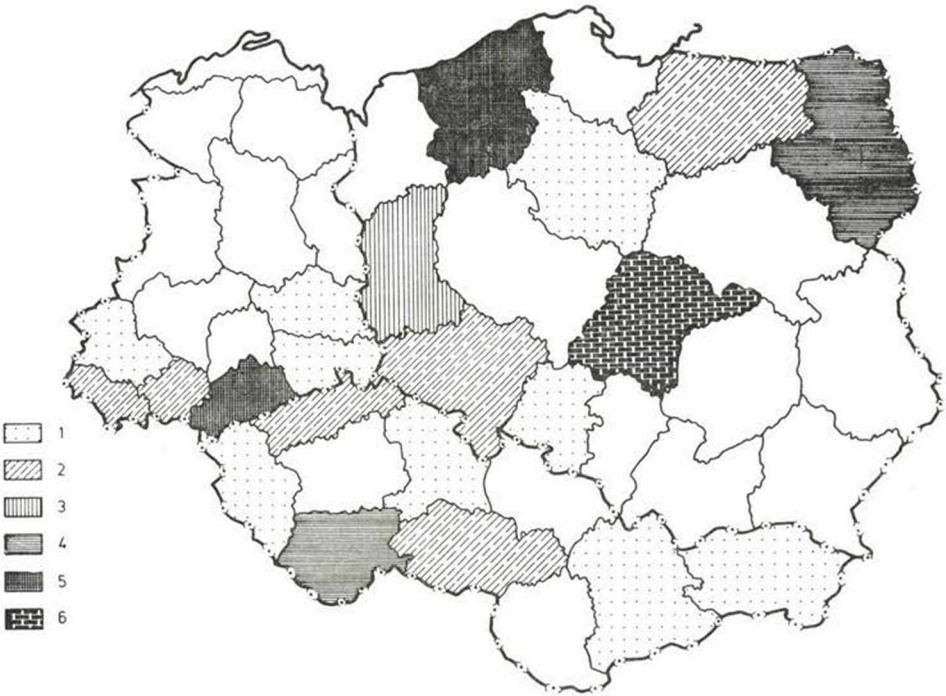


*Figure 4.* Specialization in light industry
1 = 1.0–1.3, 2 =1.3–1.6, 3 = 1.6–1.9, 4 = 1.9–2.2, 5 = 2.2–2.5, 6 = over 2.5

mixed-type regions of underdeveloped territories in the GDR and Czechoslovakia derives from the more scattered localization of the German and Czech heavy industry (the concentration index of heavy industry is 33 in the GDR, 35 in Czechoslovakia and 37 in Poland). Eastern Slovakia has become specialized also in heavy industry, beside the traditional food and light industry orientation, because of the quick industrialization. This establishment of a three-fold specialization is a unique phenomenon in the underdeveloped regions of the countries under survey.

Among the industrially less developed regions the Frankfurt one in the GDR and the Kielce voivodship in Poland are characterized by heavy industry specialization. There is no separate light industry region in this class in any one of the countries.

In the shaping of heavy industry specialization in the under- and less-developed territories the consumer's market (the engineering industry of Potsdam region and Warsawian voivodship) and the lines of delivery of the imported raw materials (the metallurgy of Eastern-Slovakia, Frankfurt region, Szczecin voivodship, the petroleum chemistry of Frankfurt region and that of Warsawian voivodship) mean the main location factors for

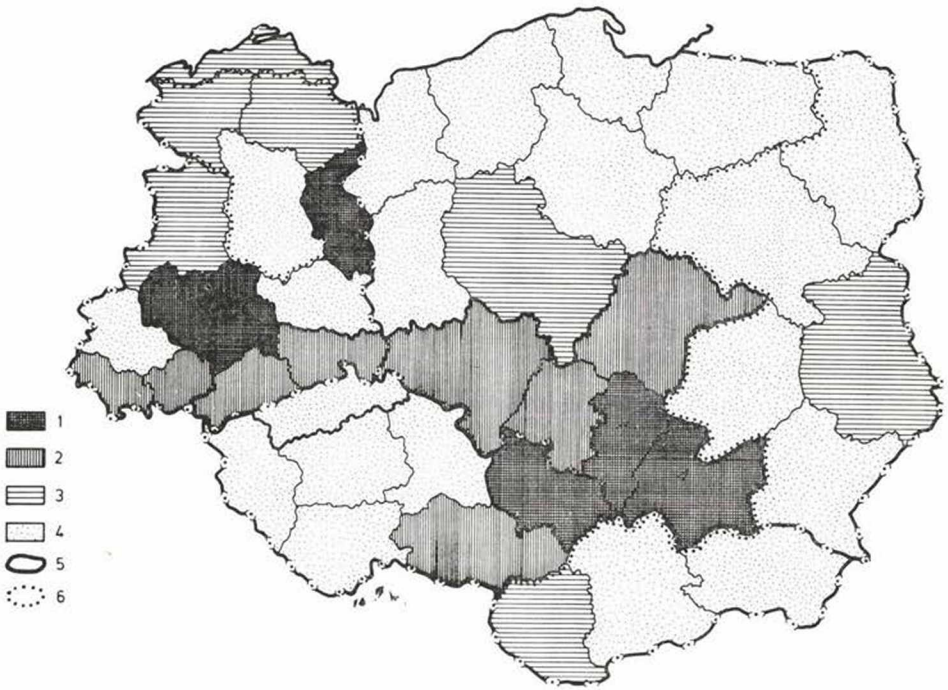


*Figure 5.* Regional types on the basis of sectoral specialization
1 = heavy industry, 2 = light industry, 3 = food industry, 4 = mixed, 5 = old, traditional industry, 6 = developing industry

both of the mixed-type and definitely heavy industry regions, too. We can meet heavy industry specialization based on local raw materials only in the GDR's (Cottbus region) and Poland's less developed territories (Rzeszów and Kielce voivodship).

Food processing is the dominant specialization of the industrially under- or less-developed regions being specialized for only one industry.

This type of region emerges especially in the GDR with its high specialization value (Neubrandenburg, Schwerin, Rostock, Magdeburg). In these regions the lack of light industry derives from the concentration of this industry in the industrially developed territories. The number of regions uniquely excelling with their food industry specialization is less in Poland (Poznan, Lublin) and in Czechoslovakia (Western-Slovakia) which can be explained not only by the smaller differences of the food industry's territorial scattering (GDR 21, Poland 22, Czechoslovakia 27), but rather by the decreasing concentrational indexes (49; 35; 25) in the order of the above mentioned countries.

*The industrially developed and outstandingly developed regions* are extending from west to east in the south of GDR and Poland and in the north of Czech and Moravian countries. The main specialization of these old-tra-

ditional contiguous industrial areas, *the heavy and light industry* are about equal highly important for the given countries one by one as well as in their mutual cooperation. In the GDR lignite is the basis of heavy industry specialization (Halle, Leipzig), while in Poland (Katowice, Kraków) and in Czechoslovakia (Northern Moravia) it is the coal. In this industrially developed belt most of the regions having mineral resources and fuel of their own – except North-Czech country (lignite) that is specialized also in light industry – are specialized in heavy industry. Light industry rides on the German and Czech side of the Erzgebirge, respectively on the Polish and Czech side of the Sudeten during the evolvement of capitalism and they are many-sidedly developed even today (manufacturing of textile, glass, ceramics, toys, musical instruments, etc.). Its basis was formed by the local flax, wool, rivers (fresh water), quartz sand, lignite used as fuel, and the available labour force.

In the Lodz voivodship, located on the Northern wing of the highly developed industrial belt, the scene of light industry is dominated by the manyfolded traditional textile industry. Only light industry regions are usually those of outstanding specializational values (Lodz voivodship, Karl-Marx-Stadt region). The low specializational degree of the heavy industry type regions (6. figure) manifests the many-sided structure of industry, as other branches are also developed there.

In this belt there are no outstanding regions with food industry specialization, although the dense population is supplied by the well developed local food industry. In some places the specializational values of food industry are approaching number 1. (e.g. Opole voivodship). The reason for the relative shortfall of food industry are: the less favourable physical geographic potentialities of agriculture which provides raw materials for food industry (mountains, cooler climate, limited area of plains with arable lands etc.). On the other hand, the wealth in mineral resources and sources of energy, the cultivation of industrial crops, the development of stock-breeding advantageously influence the location of heavy industry branches and their production efficiency. In some regions exactly the open pit mining draws away valuable lands from agricultural cultivation (e.g. Halle, Leipzig) although it can exert favourable influence on the production costs of manufacturing industries.

Mixed-type specialization is not characteristic for the industrially developed and outstandingly developed region groups. Only North-Czech country represents this region-type with its combination of light and heavy industry specialization.

*The medium developed regions* are situated on the southwestern (Erfurt, Suhl, Gera) and southern (Middle-Czech, Eastern-Czech and South-Moravia countries) border of this region group. These occupy an intermediate position between the earlier discussed region-groups on the basis of development level and the character of industrial specialization, too. All the three industrial specialization types show up similarly to the underdeveloped region-group. On the other hand, there is not a single industry group, against both other groups of regions, which rises with high specializational

values. Like in the underdeveloped region groups here also the mixed-type regions dominate. The combination of branch-specialization recalls both to the underdeveloped (light and food industrial, food and light industrial) and developed (light and heavy industrial) regions. However, beside it, we meet the joint heavy industry and food processing specialization, too (Middle-Czech region and Gdansk voivodship).


*Figure 6.* Specialization in heavy industry
1 = 1.0–1.3, 2 = 1.3–1.6

The regions, specialized only for one industry (Suhl, Gera, South-Moravia) are always light industrial type in the medium-developed regions. On the basis of light industry's fully developed specialization this group of regions reminds us to the developed one. In some places the regions of light industry are grouped in one line, bordering on the developed regional group (Gera, Suhl), with that location being probably due to the effects of similar physical and economic factors.

The utilization of the special potentials stemming from the geographic location has raised the Gdansk voivodship to the medium developed group of regions, in the midst of under- and less- developed territories. Here the heavy-industrial specialization is strongly connected to the seaport functions. The food processing is quite characteristic, too. On the basis of this

twofold specialization Gdansk voivodship shows a remarkable similarity to Szczecin voivodship, being also bordered on the seacoast, though industrially less developed.

*4. table*

**The relation between state of development and specialization**

| Categories for development level of industry | Characteristic specialization | | | |
|---|---|---|---|---|
| | GDR | Czechoslovakia | Poland | Together |
| outstandingly developed | K | V<br>N | N | NN<br>V<br>K |
| developed | NN<br>K | | KKK<br>N | NNN<br>KKKK |
| medium developed | V<br>KK | VV<br>K | V | KKK<br>VVVV |
| less developed | N<br>VV<br>É | V<br>É<br>V | VVVVV<br>É | N<br>VVVVVVVVV<br>ÉÉÉ |
| underdeveloped | ÉÉÉ | V<br>V | VVVV<br>É | VVVVVV<br>ÉÉÉÉ |
| together | NNN<br>KKKK<br>VVV<br>ÉÉÉÉ | N<br>K<br>VVVVVVV<br>É | NN<br>KKK<br>VVVVVVVVVV<br>ÉÉ | |

N = heavy industry, É = food industry, K = light industry, V = mixed-type industry

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## РЕЗЮМЕ

### ВОПРОСЫ ГЕОГРАФИИ ПРОМЫШЛЕННОСТИ «В СЕВЕРНОЙ ГРУППЕ» ЕВРОПЕЙСКИХ СОЦИАЛИСТИЧЕСКИХ СТРАН

Анализируется уровень промышленного развития и территориальные различия в размещении промышленности более развитых европейских социалистических стран (ГДР, ЧССР, ПНР). Различия в размещении промышленности суммируются в территориальной концентрации производства. При оценке уровня и изменения территориальной концентрации автор использует коэффициент Флоренса, построенный на основе сопоставления удельного веса районов в общей численности населения и промышленного персонала страны. Показатели территориальной концентрации ряда отраслей промышленности исчисленны по валовой продукции относительно площади по тому же методы. Даётся характеристика основных направлений сдвигов в размещении промышленности. Устанавливается взаимосвязь между темпом развития и уровнем индустриализованности, между темпом развития и специализацией промышленности административных районов названных стран.